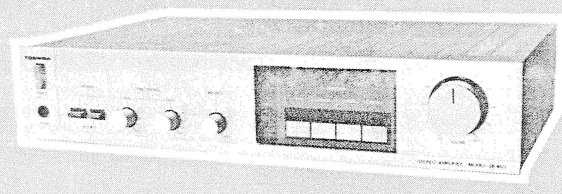
SERVICE DATA
FILE NO. 170-192

TOSHIBA

STEREO AMPLIFIER

SB-M22



TE Model

TA Model

SPECIFICATIONS

■ General

Power supply:	AC 220V, 50 Hz (TE, FR) AC 240V, 50 Hz (TU, AY) AC 110 – 127/220 – 240V, 50/60 Hz (VF)
Power consumption:	280W (TE, FR) 170W (TU, AY) 120W (TA, TC) 80W (VF)
Weight:	4.7 kg
Dimensions:	420(W) x 89(H) x 279(D)mm

■ Amplifier

Continuous power output:	
60 Hz ~ 12.5 kHz both ch. driven:	40W + 40W (8Ω IEC) (TE, FR, TU, AY, VF)
20 Hz ~ 20 kHz both ch. driven:	35W + 35W (8Ω) (TA, TC)
Total harmonic distortion:	at rated output: 0.7% (TE, FR, TU, AY, VF) at rated output: 0.09% (TA, TC) at 1/2 rated output, 1 kHz: 0.03%
Frequency response:	10 Hz ~ 100 kHz ($\pm \frac{0}{3}$ dB) 30 Hz ~ 20 kHz ±0.5 dB (RIAA equ.)
Power band width (IHF):	10 Hz ~ 75 kHz (0.2% THD)
Load impedance:	4Ω ~ 16Ω (TE, FR, VF) 8Ω ~ 16Ω (TU, AY, TA, TC)
S/N (IHF A Network):	100 dB (TUNER/AUX) 73 dB (PHONO)
Input sensitivity/ impedance:	PHONO 2.5mV/47kΩ TUNER 150 mV/27kΩ AUX/TAPE 150 mV/27kΩ
Output level:	TAPE REC 150 mV/3.3kΩ
Tone control:	BASS: (at 100 Hz) ±9 dB TREBLE: (at 10 kHz) ± 9 dB
Loudness control:	+ 9 dB (at 100 Hz, –30 dB)
Phono overload level:	150mV (0.05% THD)

Specifications are subject to change without notice.

TE, FR, TU, AY, TA, TC, VF
PRINTED IN JAPAN 22905296 April, 1984 (S)

CONTENTS

1. PANEL FACILITIES 3
2. DISASSEMBLY INSTRUCTIONS 4
3. ELECTRICAL PART LOCATIONS (TE, FR, TU, AY Model) 5
4. SCHEMATIC DIAGRAM (TE, FR, TU, AY Model) 5
5. ELECTRICAL PARTS LOCATIONS (TA, TC, VF Model) 7
6. SCHEMATIC DIAGRAM (TA, TC, VF Model) 8
7. IDLE CURRENT ADJUSTMENTS 9
8. BLOCK DIAGRAM 9
9. EXPLODED VIEW CABINET 10
10. CABINET PARTS LIST 11
11. PARTS LIST . . . . . 12 to 14

1. PANEL FACILITES

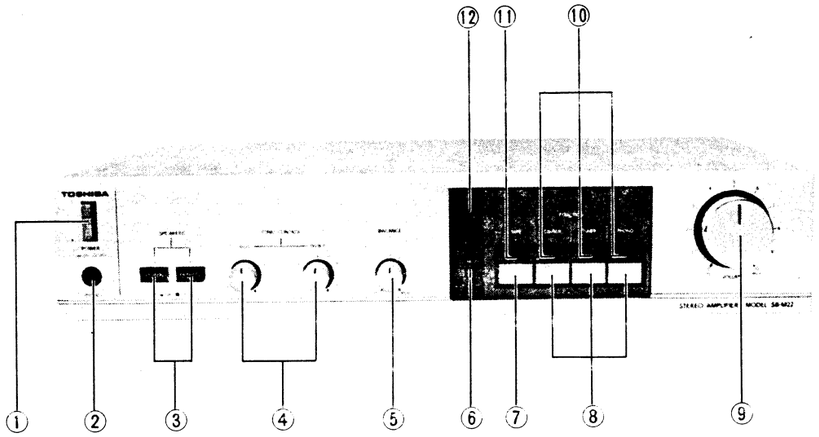


Figure 1

① POWER switch
② PHONES jack
③ SPEAKERS selectors
④ BASS and TREBLE controls
⑤ BALANCE control
⑥ LOUDNESS switch
⑦ TAPE monitor switch
⑧ FUNCTION selectors
⑨ VOLUME control
⑩ FUNCTION indicators
⑪ TAPE monitor indicator
⑫ POWER indicator

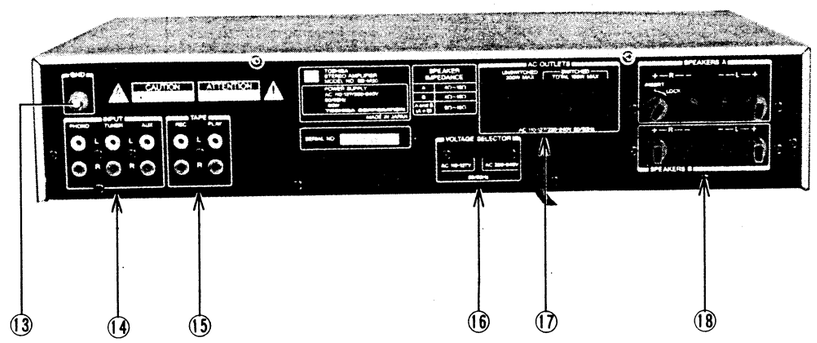


Figure 2

⑬ Ground terminal
⑭ INPUT terminals
⑮ TAPE DECK terminals (PIN Jacks)
⑯ VOLTAGE SELECTOR (VF Only)
⑰ AC OUTLETS (TA, TC, VF)
⑱ SPEAKER terminals

2. DISASSEMBLY INSTRUCTIONS

TOP COVER REMOVAL

1. Remove six screws Ⓐ (ϕ3 x 8mm), Ⓑ (ϕ3 x 8mm) and Ⓒ (ϕ3 x 8mm), and the top cover can be removed from the unit. (See Figure 3, 4 and 5)

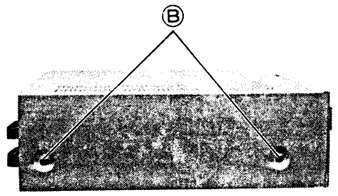


Figure 4

FRONT PANEL REMOVAL

1. Remove the top cover. (See Figure 3, 4 and 5)
2. Remove seven screws Ⓓ (ϕ3 x 8mm) and Ⓔ (ϕ3 x 8mm), and the front panel can be removed from the unit. (See Figure 6 and 7)

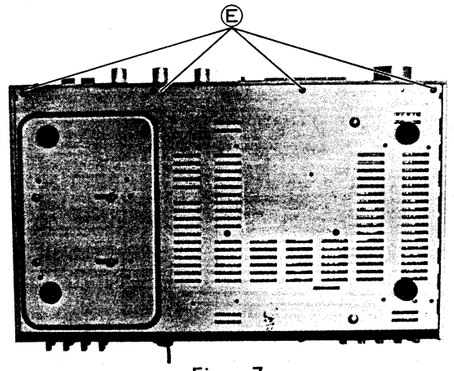


Figure 7

P.C. BOARD REMOVAL

1. Remove the top cover and front panel.
2. Remove four knobs Ⓕ , six screws Ⓖ (ϕ3 x 6mm), Ⓗ (ϕ3 x 8mm) and nut Ⓘ. (See Figure 8)
3. Remove nine screws Ⓙ (ϕ3 x 8mm), Ⓚ (ϕ3 x 8mm), and the jack plate, then the P.C. Board can be removed from the unit. (See Figure 8, 9 and 10)

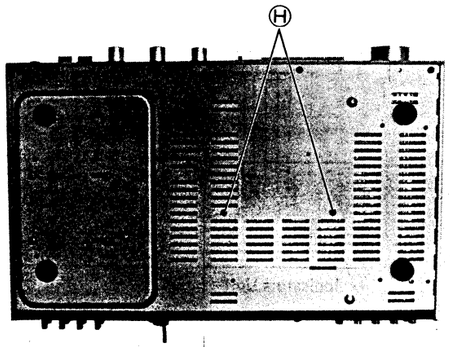


Figure 9

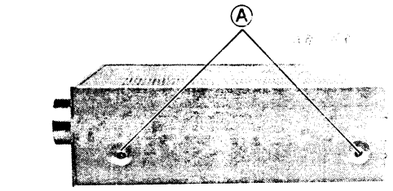


Figure 3

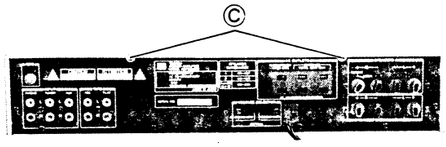


Figure 5

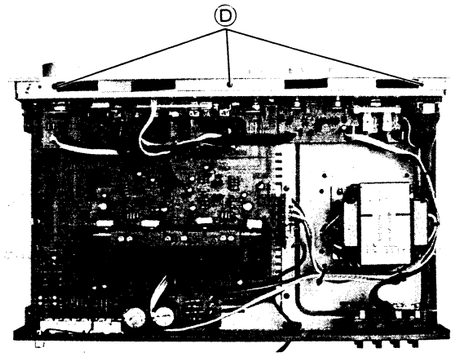


Figure 6

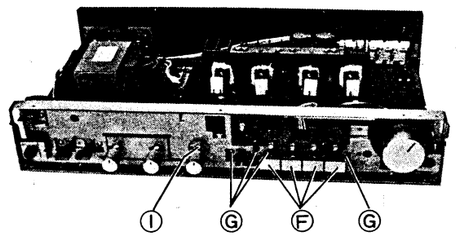


Figure 8

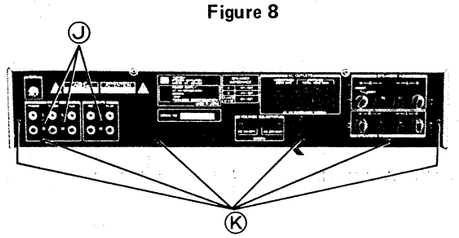


Figure 10

(TE, FR, TU, AY Model)

3. ELECTRICAL PARTS LOCATIONS

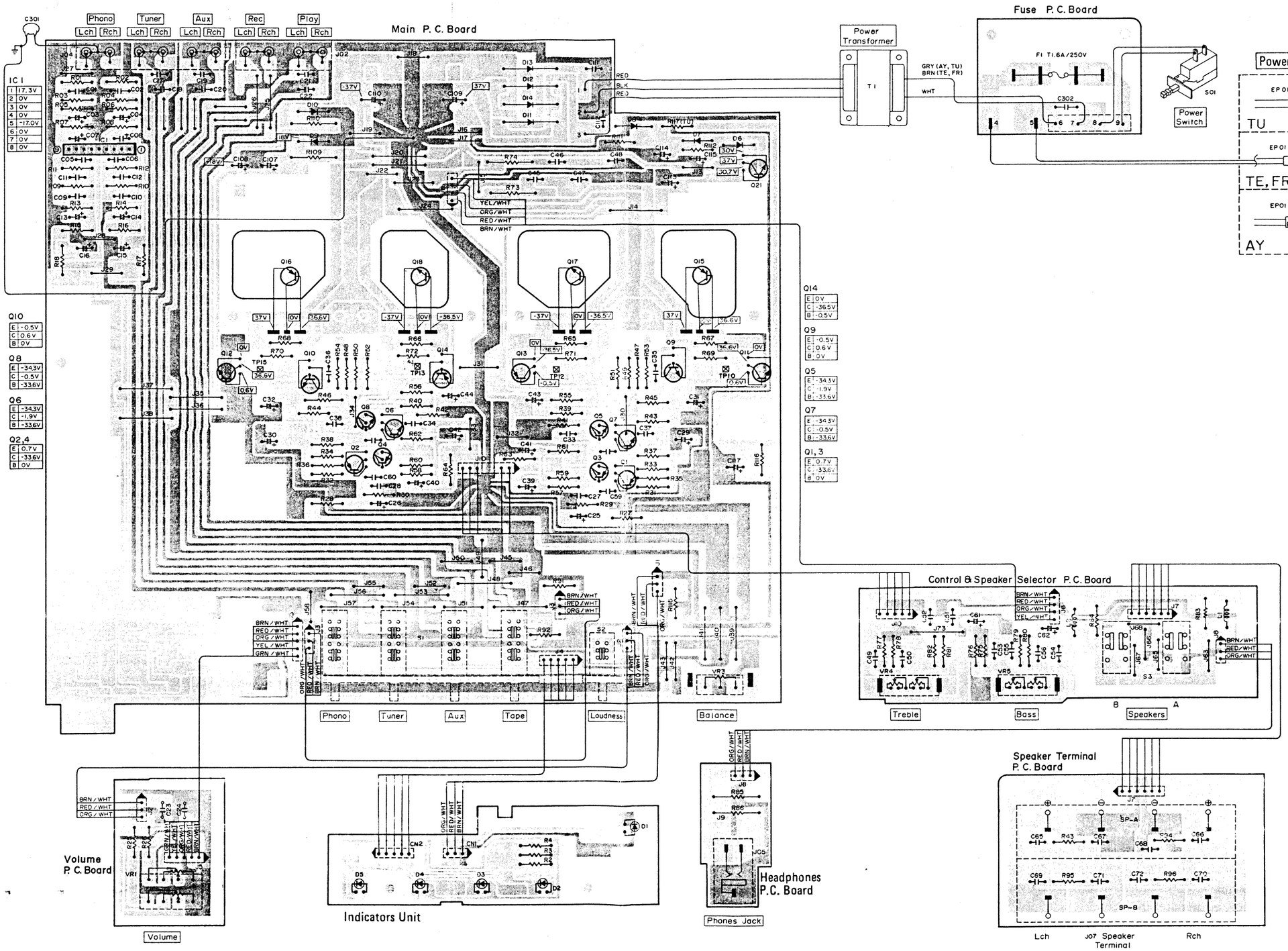
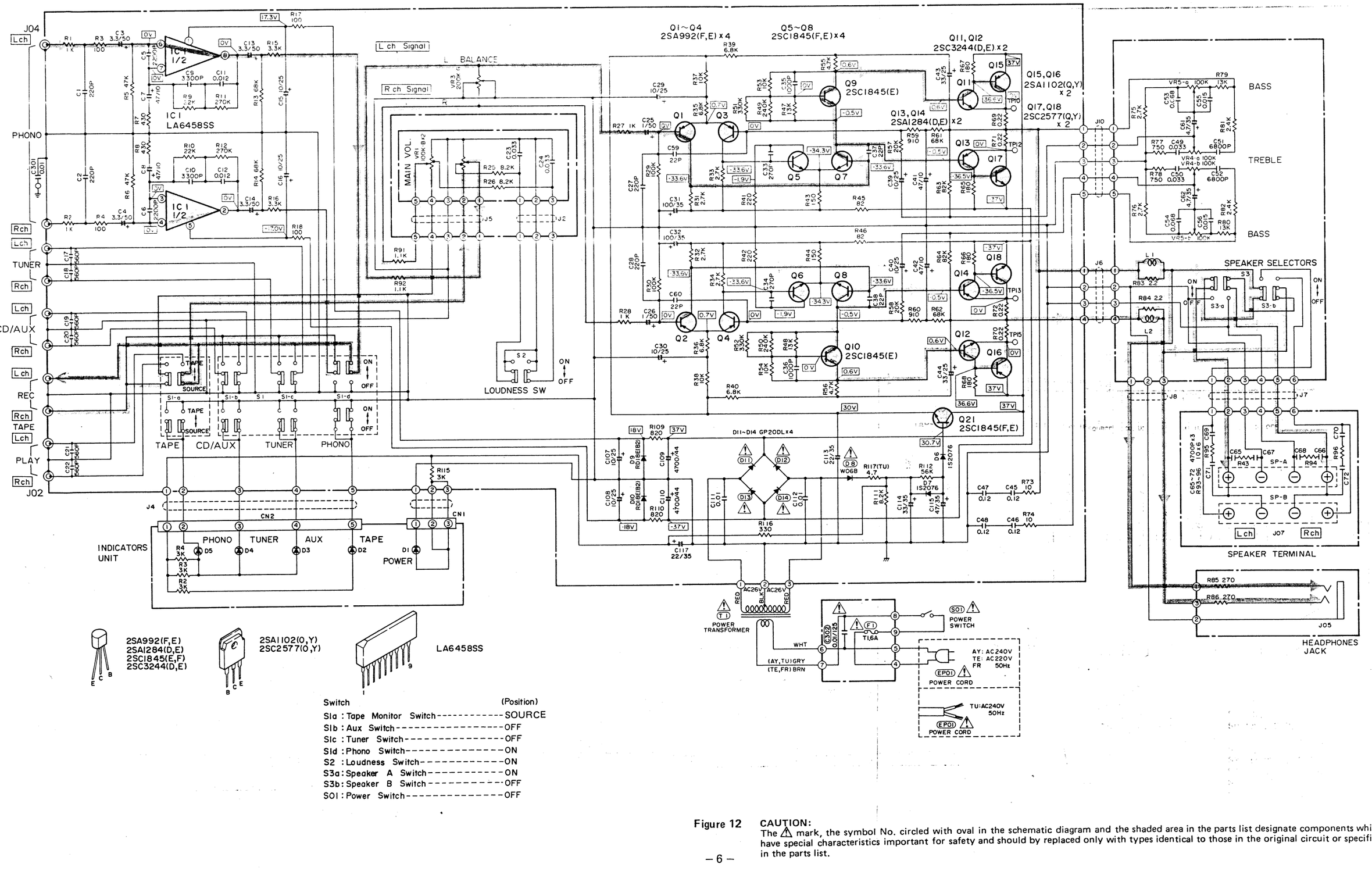


Figure 11

4. SCHEMATIC DIAGRAM

(TE, FR, TU, AY Model)



Switch	(Position)
S1a : Tape Monitor Switch	SOURCE
S1b : Aux Switch	OFF
S1c : Tuner Switch	OFF
S1d : Phono Switch	ON
S2 : Loudness Switch	ON
S3a : Speaker A Switch	ON
S3b : Speaker B Switch	OFF
S01 : Power Switch	OFF

Figure 12

CAUTION:
The ⚠ mark, the symbol No. circled with oval in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should by replaced only with types identical to those in the original circuit or specified in the parts list.

5. ELECTRICAL PARTS LOCATIONS

(TA, TC, VF Model)

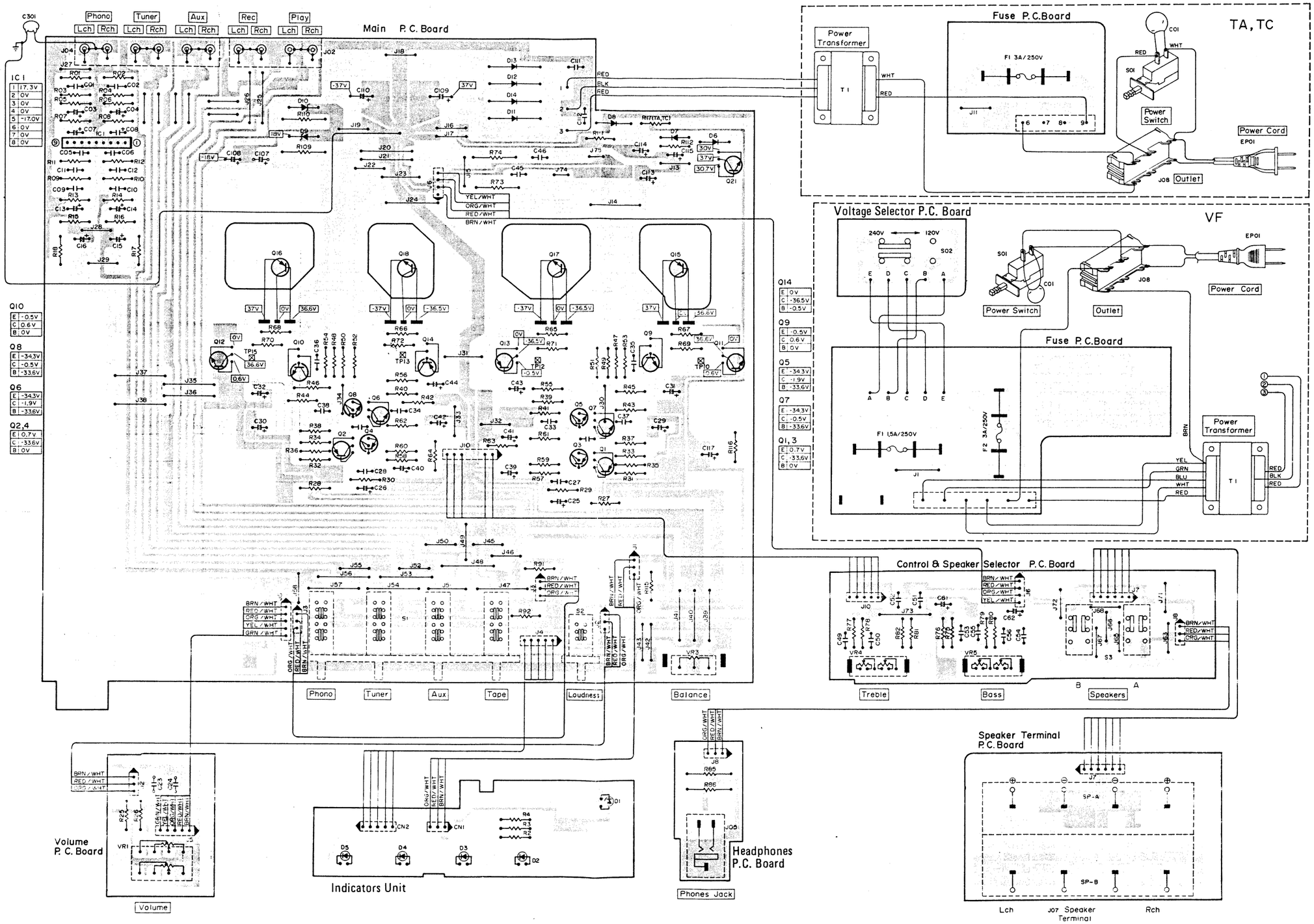
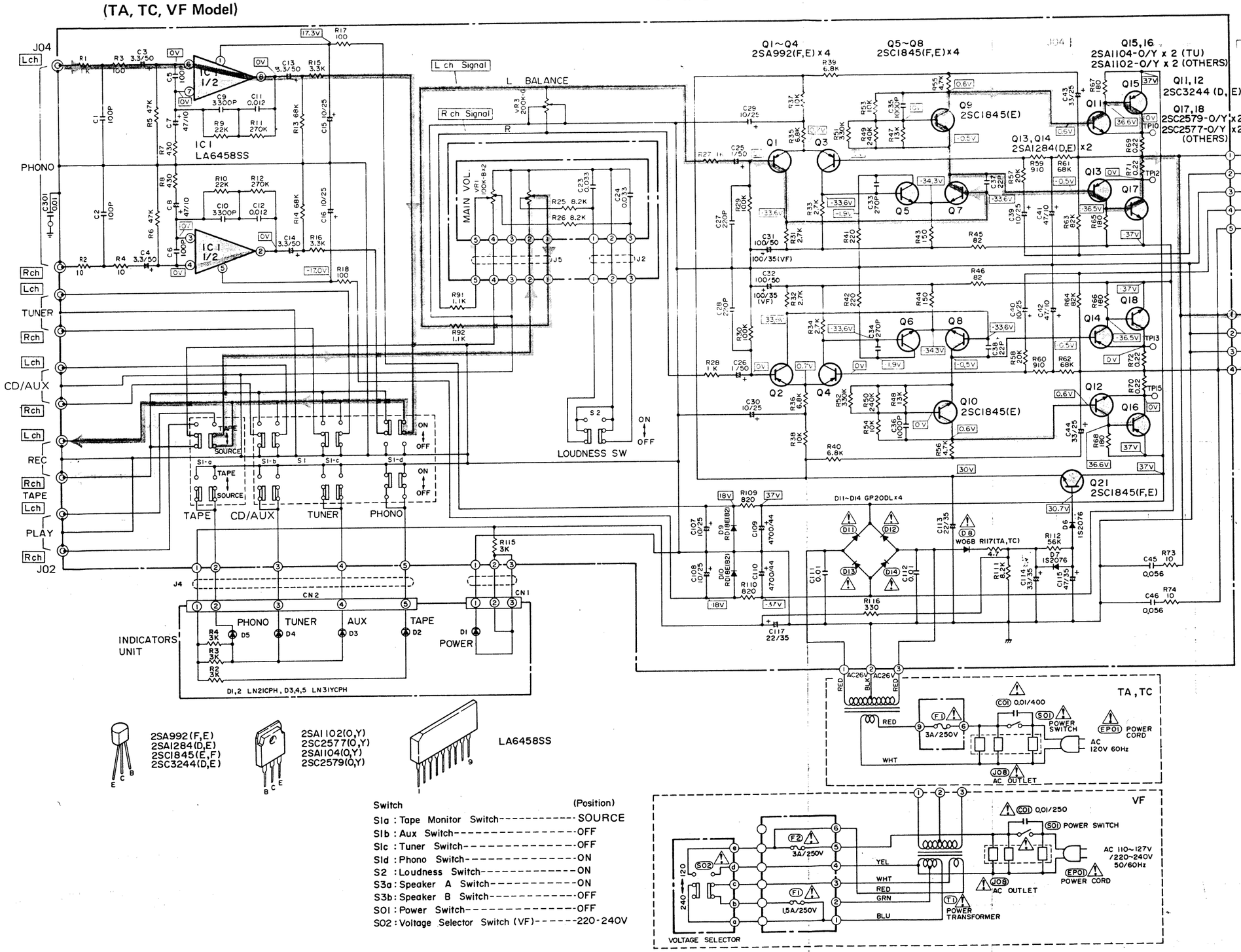


Figure 13

6. SCHEMATIC DIAGRAM

(TA, TC, VF Model)



Switch (Position)

SIa : Tape Monitor Switch----------SOURCE
SIb : Aux Switch----------OFF
SIc : Tuner Switch----------OFF
SId : Phono Switch----------ON
S2 : Loudness Switch----------ON
S3a : Speaker A Switch----------ON
S3b : Speaker B Switch----------OFF
SOI : Power Switch----------OFF
SO2 : Voltage Selector Switch (VF)------220-240V

Figure 14 **CAUTION:**
The ⚠ mark, the symbol No. circled with oval in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should by replaced only with types identical to those in the original circuit or specified in the parts list.

7. IDLE CURRENT ADJUSTMENTS

(Left Channel)
Adjust the equivalent resistance value of R47, R49 and R51 so that idle current is 50 mA (voltage 22 mV) between TP10 and TP12 of TEST POINTS.

(Right Channel)
Adjust the equivalent resistance value of R48, R50 and R52 so that idle current is 50 mA (voltage 22 mV) between TP13 and TP15 of TEST POINTS.

As you adjust equivalent resistance value smaller, idle current will increase, and as you adjust equivalent resistance value bigger, idle current will decrease.

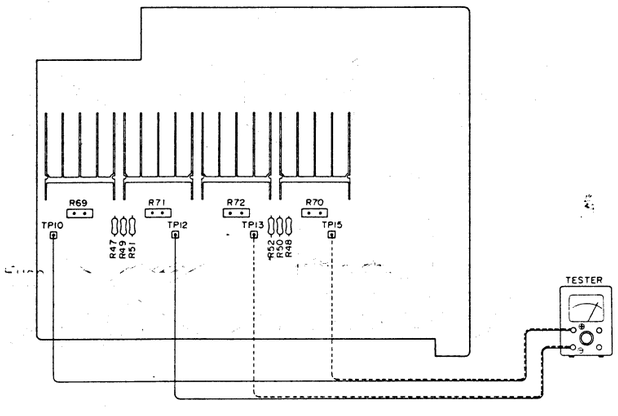


Figure 15

8. BLOCK DIAGRAM

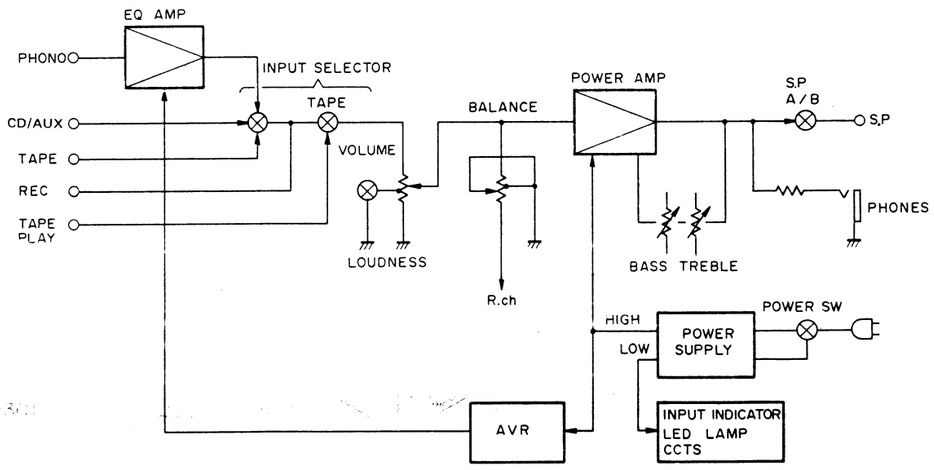


Figure 16

9. EXPLODED VIEW CABINET

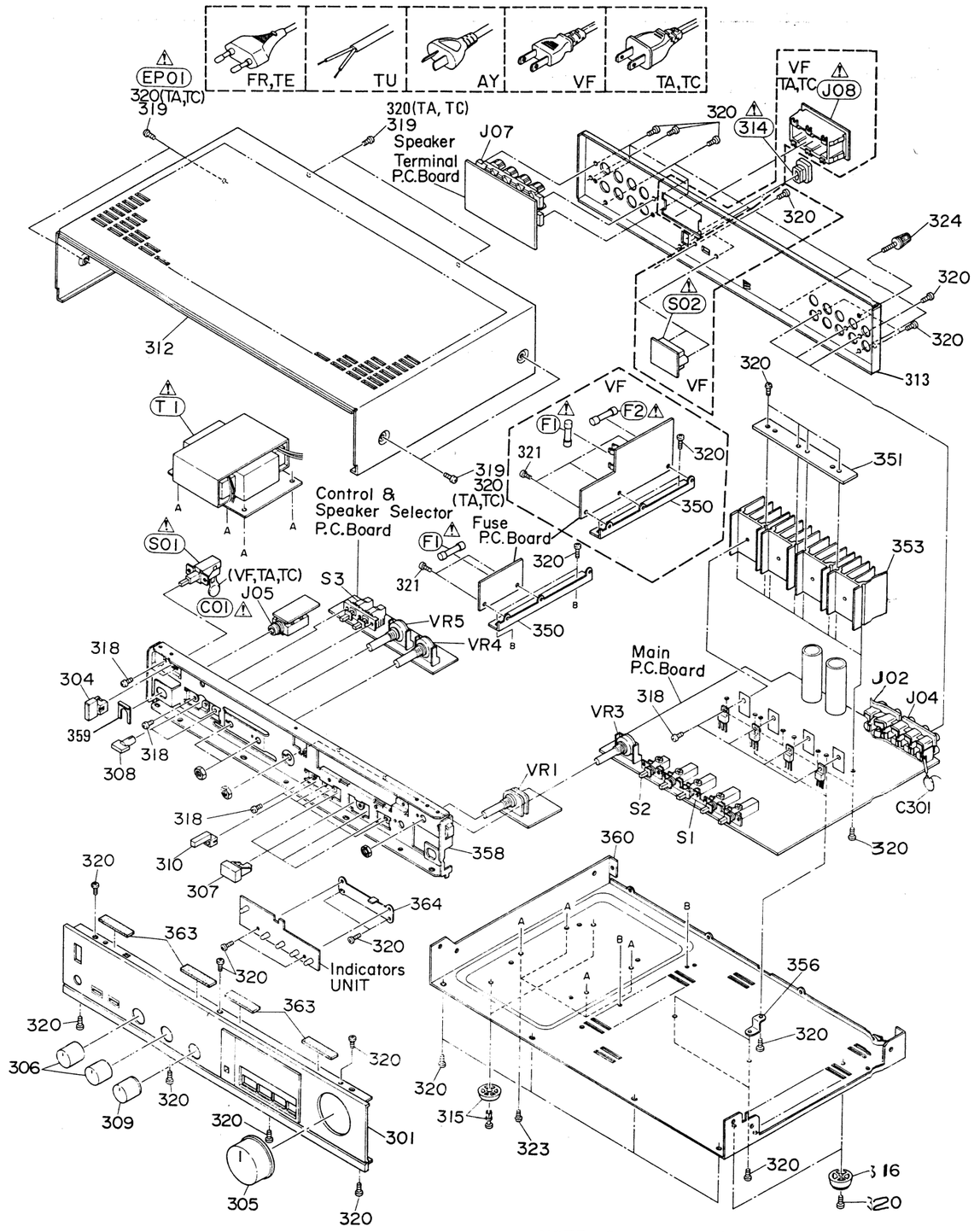


Figure 17 **NOTE:** Parts excluded in the parts list are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

10. CABINET PARTS LIST

Symbol No.	Part No.	Description
	TE, FR, TU, AY, VF ∿ (Silver) TA, TC ∿ (Black)	
301	22825341	Panel Ass'y (TE, TU, AY, VF)
301	22825342	Panel Ass'y (FR)
301	22825359	Panel Ass'y (TA, TC)
304	22824460	Knob Ass'y, Power (Silver)
304	22827003	Knob Ass'y, Power (Black)
305	22826413	Knob, Main Volume (Silver)
305	22884545	Knob, Main Volume (Black)
306	22826430	Knob, Treble/Bass (Silver)
306	22884541	Knob, Treble/Bass (Black)
307	22884517	Knob Ass'y, TAPE/CD/ TUNER/PHONO (Silver)
307	22824010	Knob Ass'y, TAPE/CD/ TUNER/PHONO (Black)
308	22884518	Knob, Speaker (Silver)
308	22884564	Knob, Speaker (Black)
309	22826431	Knob, Balance (Silver)
309	22826433	Knob, Balance (Black)
310	22884521	Knob, Loudness (Silver)
310	22884546	Knob, Loudness (Black)
312	22841391	Top Cover (TE, AY, FR)
312	22841043	Top Cover (TU, VF)
312	22841499	Top Cover (TA, TC)
313	22841437	Jack Plate (TE)
313	22841439	Jack Plate (TU, AY)
313	22841438	Jack Plate (FR)
313	22841441	Jack Plate (TA, TC)
313	22841440	Jack Plate (VF)
314	22848041	Cord Bush
315	22828090	Foot, Left
316	22821091	Foot, Right
317	22705026	Plastic Rivet, ϕ3 x 6mm
318	22701482	Screw, ϕ3 x 6mm, PAN
319	22707327	Screw, ϕ3 x 8mm, BID Tapping
320	22707911	Screw, ϕ3 x 8mm, BID Tapping, Black
321	22701237	Screw, ϕ3 x 6mm
323	22707269	Screw, ϕ4 x 10mm, Tapping
324	22708058	Screw, Ground

Symbol No.	Part No.	Description

11. PARTS LIST

CAUTION:
The ⚠ mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replace only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description
IC'S, TRANSISTORS & DIODES		
AMPLIFIER UNIT		
IC1	22117271	IC, LA6458SS
Q1, 2, 3, 4	22117256	Transistor, 2SA992-F/E
Q5, 6, 7, 8	22117262	Transistor, 2SC1845-F/E
Q9, 10	22117284	Transistor, 2SC1845-E
Q11, 12	22117321	Transistor, 2SC3244-D/E
Q13, 14	22117320	Transistor, 2SA1284-D/E
Q15, 16	22117257	Transistor, 2SA1102-O/Y (TE, FR, AY, VF)
Q15, 16	22117341	Transistor, 2SA1104-O/Y (TU)
Q17, 18	22117265	Transistor, 2SC2577-O/Y (TE, FR, AY, VF)
Q17, 18	22117342	Transistor, 2SC2579-O/Y (TU)
Q21	22117262	Transistor, 2SC1845-F/E
D6, 7	22115882	Diode, 1S2076A
D8	22115894	Diode, W06B
D9, 10	22115539	Diode, RD18E-B2
D11, 12	22115886	Diode, GP20DL
D13, 14		
INDICATORS UNIT		
D1, 2	22115971	Diode, LN21CPH, LED, RED
D3, 4, 5	22119045	Diode, LN31YCPH, LED UMBER
ELECTRICAL PARTS		
L1, 2	22210188	Coil (TE, TU, FR, AY)
⚠ T1	22224266	Power Transformer (TE, FR)
⚠ T1	22224267	Power Transformer (TU)
⚠ T1	22224268	Power Transformer (AY)
⚠ T1	22224386	Power Transformer (TA, TC)
⚠ T1	22224269	Power Transformer (VF)
S1	22196331	Push Switch, Function TAPE/CD/TUNER/PHONO
S2	22196332	Push Switch, Loudness
S3	22196491	Push Switch, Speaker A/B

Symbol No.	Part No.	Description
⚠ S01	22196329	Push Switch, Power
⚠ S02	22196336	Slide Switch, Voltage (VF)
⚠ F1	22144474	Fuse, T1.6A, 250V (TE, FR, TU, AY)
⚠ F1	22144529	Fuse, 3A, 250V (TA, TC)
⚠ F1	22144475	Fuse, 1.5A, 250V, (VF)
⚠ F2	22144476	Fuse, 3A, 250V (VF)
J02	22198061	Jack, 4P, Tape Deck Terminals
J04	22198054	Jack, 6P, Input Terminals
J05	22198056	Jack, Headphones, ϕ6
J07	22162522	Speaker Terminals 8P
⚠ J08	22169040	AC Outlet (TA, TC, VF)
⚠ EP01	22176286	Power Cord (TE, FR)
⚠ EP01	22176628	Power Cord (TU)
⚠ EP01	22176588	Power Cord (AY)
⚠ EP01	22176573	Power Cord (TA, TC)
⚠ EP01	22176608	Power Cord (VF)
EP02	22165036	Fuse Holder (TE, TU, FR, AY, TA, TC)
EP03	22165093	Fuse Holder (VF)

CAPACITORS

D = ±0.5pF, J = ±5%, K = ±10%, M = ±20%,
Z = −20 ∿ +80%, P = −0 ∿ +100%
ABBREVIATIONS: CD = Ceramic Disk, EL = Electrolytic, MY = Mylar, PP = Polypropylene

AMPLIFIER UNIT		
C1, 2	22362221	CD, 220pF, 50V, J (TE, FR, TU, AY)
C1, 2	22362101	CD, 100pF, 50V, J (VF)
C3, 4	22448339	EL, 3.3mfd, 50V
C5, 6	22349222	CD, 2200pF, 50V, J (TE, FR, TU, AY)
C5, 6	22362101	CD, 100pF, 50V, K (VF)
C7, 8	22483470	EL, 47mfd, 10V
C9, 10	22371332	MY, 3300pF, 50V, J
C11, 12	22371123	MY, 0.012mfd, 50V, J
C13, 14	22488339	EL, 3.3mfd, 50V
C15, 16	22446100	EL, 10mfd, 25V

Symbol No.	Part No.	Description
C17, 18, 19, 20, 21, 22	22349561	CD, 560pF, 50V, K (TE, FR, TU, AY)
C23, 24	22371333	MY, 0.033mfd, 50V, J
C25, 26	22488109	EL, 1mfd, 50V
C27, 28	22362221	CD, 220pF, 50V, J
C29, 30	22486100	EL, 10mfd, 25V
C31, 32	22487101	EL, 100mfd, 35V (TE, FR, TU, AY, VF)
C31, 32	22488101	EL, 100mfd, 50V (TA, TC)
C33, 34	22362271	CD, 270pF, 50V, J
C35, 36	22349102	CD, 1000pF, 50V, K
C37, 38	22361220	CD, 22pF, 50V, J
C39, 40	22446100	EL, 10mfd, 25V
C41, 42	22483470	EL, 47mfd, 10V
C43, 44	22486330	EL, 33mfd, 25V
C45, 46	22321240	MY, 0.12mfd, 50V, J (TE, FR, TU, AY)
C45, 46	22371563	MY, 0.056mfd, 50V, J (VF)
C47, 48	22321240	MY, 0.12mfd, 50V, J (TE, FR, TU, AY)
C49, 50	22371333	MY, 0.033mfd, 50V, J
C51, 52	22371682	MY, 6800pF, 50V, J
C53, 54	22371683	MY, 0.068mfd, 50V, J
C55, 56	22371153	MY, 0.015mfd, 50V, J
C59, 60	22361220	CD, 22pF, 50V, J (TE, FR, TU, AY)
C61, 62	22447479	EL, 4.7mfd, 35V
C65, 66, 67, 68, 69, 70, 71, 72	22349472	CD, 4700pF, 50V, K (TE, FR, TU, AY)
C107, 108	22485100	EL, 10mfd, 25V
C109, 110	22440644	EL, 4700mfd, 44V
C111, 112	22342103	CD, 0.01mfd, 50V, Z
C113	22447220	EL, 22mfd, 35V
C114	22487330	EL, 33mfd, 35V
C115	22447470	EL, 47mfd, 35V
C117	22447220	EL, 22mfd, 35V
C301	22342103	CD, 0.01mfd, 50V, Z
⚠ C302	22340147	CD, 0.01mfd, 400V, P (TE, FR, TU, AY)
OTHERS		
⚠ C01	22340147	CD, 0.01mfd, 400V, P (TA, TC)
⚠ C01	22340172	CD, 0.01mfd, 250V, Z (VF)

Symbol No.	Part No.	Description
RESISTORS All resistors are carbon film, ¼W, ±5% unless otherwise noted. 1K ohm = 1000 ohm		
AMPLIFIER UNIT		
R1, 2	22545102	1K ohm (TE, FR, TU, AY)
R1, 2	22545100	10 ohm (VF)
R3, 4	22545101	100 ohm (TE, FR, TU, AY)
R3, 4	22545100	10 ohm (VF)
R5, 6	22545473	47K ohm
R7, 8	22540695	430 ohm
R9, 10	22545223	22K ohm
R11, 12	22545274	270K ohm
R13, 14	22545683	68K ohm
R15, 16	22545332	3.3K ohm
R17, 18	22545101	100 ohm
R25, 26	22545822	8.2K ohm
R27, 28	22545102	1K ohm
R29, 30	22545104	100K ohm
R31, 32	22545272	2.7K ohm
R33, 34	22545272	2.7K ohm
R35, 36	22545682	6.8K ohm
R37, 38	22545103	10K ohm
R39, 40	22545682	6.8K ohm
R41, 42	22545221	220 ohm
R43, 44	22545151	150 ohm
R45, 46	22545820	82 ohm
R47, 48	22540731	13K ohm
R49, 50	22540714	240K ohm
R51, 52	22545184	180K ohm
R53, 54	22545103	10K ohm
R55, 56	22545472	4.7K ohm
R57, 58	22540699	20K ohm
R59, 60	22540697	910 ohm
R61, 62	22545683	68K ohm
R63, 64	22545823	82K ohm
R65, 66	22545181	180 ohm
R67, 68	22545181	180 ohm
R69, 70, 71, 72	22570596	0.22 ohm, 5W, Wire Wound
R73, 74	22570250	10 ohm, 1W, Metal Oxide Film
R75, 76	22545272	2.7K ohm
R77, 78	22540696	750 ohm
R79, 80	22540731	13K ohm
R81, 82	22545242	2.4K ohm
R83, 84	22545229	2.2 ohm (TE, FR, TU, AY)
R85, 86	22570267	270 ohm, 1W, Metal Oxide Film
R91, 92	22540733	1.1K ohm
R93, 94 95, 96	22545100	10 ohm (TE, FR, TU, AY)

Symbol No.	Part No.	Description
R109, 110	22570273	820 ohm, 1W, Metal Oxide Film
R111	22545822	8.2K ohm
R112	22545563	56K ohm
R115	22540732	3K ohm
R116	22545331	330 ohm
R117	22545479	4.7 ohm (TU, TA, TC)
VR1	22651590	100K ohm x 2, Variable, VOLUME
VR3	22657296	200K ohm, Variable, BALANCE
VR4	22657297	100K ohm, Variable, TREBLE
VR5	22657297	100K ohm, Variable, BASS
INDICATORS UNIT		
R1, 2, 3	22540732	3K ohm
ACCESSORIES		
AC01	22904040	Owner's Manual (TE)
AC01	22904041	Owner's Manual (FR)
AC01	22904042	Owner's Manual (TU, AY)
AC01	22904044	Owner's Manual (TA)
AC01	22904045	Owner's Manual (TC)
AC01	22904043	Owner's Manual (VF)
AC02	22164300	AC Plug Adapter (VF)

Symbol No.	Part No.	Description

TOSHIBA CORPORATION
1-1, SHIBAURA, 1-CHOME, MINATO-KU, TOKYO 105, JAPAN